RF EXPOSURE EVALUATION METHOD

FCC ID: 2AQI5-WS118

Applicable standard：
In accordance with FCC 47 CFR part 2 (2.1093) this device has been defined as a portable device which is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

Portable devices must be evaluated using the specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEEC95.1-1992. and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003.

Per FCC KDB 447498 D01 v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances s 50 mm are determined by:

SAR Test Exclusion Thresholds for 100 MHz － 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,where f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

BT-EDR

Left

Modulation	Frequency (MHz)	Output Power (dBm)	Max Antenna Gain (dBi)
GFSK	2402	-4.849	-0.65
GFSK	2441	-2.910	-0.65
GFSK	2480	-2.532	-0.65
Pi/4 DQPSK	2402	0.856	-0.65
Pi/4 DQPSK	2441	2.855	-0.65
Pi/4 DQPSK	2480	3.160	-0.65
8DPSK	2402	1.636	-0.65
8DPSK	2441	3.355	-0.65
8DPSK	2480	3.762	-0.65

max possible output power (PK,conducted)：4±1dbm

-0.65dBi logarithmic terms convert to numeric result is nearly 0.861

5dBm=3.16mW

2402MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]=3.16/5*√2.402=0.98≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

2441MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]= 3.16/5*√2.441=0.99≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

2480MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]=3.16/5*√2.48=1.00≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

BT-EDR

Right

Modulation	Frequency (MHz)	Output Power (dBm)	Max Antenna Gain (dBi)
GFSK	2402	-4.836	0.03
GFSK	2441	-2.881	0.03
GFSK	2480	-2.580	0.03
Pi/4 DQPSK	2402	0.924	0.03
Pi/4 DQPSK	2441	2.925	0.03
Pi/4 DQPSK	2480	3.077	0.03
8DPSK	2402	1.550	0.03
8DPSK	2441	3.453	0.03
8DPSK	2480	3.545	0.03

max possible output power (PK,conducted)：4±1dbm

0.03dBi logarithmic terms convert to numeric result is nearly 1.007

5dBm=3.16mW

2402MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]=3.16/5*√2.402=0.98≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

2441MHz

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Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

2480MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]=3.16/5*√2.48=1.00≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

BLE

Left

Modulation	Frequency (MHz)	Output Power (dBm)	Max Antenna Gain (dBi)
GFSK 1Mbps	2402	-2.684	-0.65
GFSK 1Mbps	2440	-0.912	-0.65
GFSK 1Mbps	2480	-0.553	-0.65
GFSK 2Mbps	2402	-2.573	-0.65
GFSK 2Mbps	2440	-1.075	-0.65
GFSK 2Mbps	2480	-0.444	-0.65

max possible output power (PK,conducted)：0±1dbm

-0.65dBi logarithmic terms convert to numeric result is nearly 0.861

1dBm=1.26mW

2402MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]=1.26/5*√2.402=0.39≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

2440MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]= 1.26/5*√2.44=0.39≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

2480MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]=1.26/5*√2.48=0.40≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

BLE

Right

Modulation	Frequency (MHz)	Output Power (dBm)	Max Antenna Gain (dBi)
GFSK 1Mbps	2402	-2.864	0.03
GFSK 1Mbps	2440	-0.876	0.03
GFSK 1Mbps	2480	-0.560	0.03
GFSK 2Mbps	2402	-2.827	0.03
GFSK 2Mbps	2440	-0.886	0.03
GFSK 2Mbps	2480	-0.670	0.03

max possible output power (PK,conducted)：0±1dbm

0.03dBi logarithmic terms convert to numeric result is nearly 1.007

1dBm=1.26mW

2402MHz

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)] · [√f(GHz)]=1.26/5*√2.402=0.39≤3.0

Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.

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Threshold at which no SAR required is 10mw and ≤ 3.0 for 1-g SAR, Separation distance is 5mm.